

TRANSLATION

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PCT114SUN	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/JP2004/018854	International filing date (<i>day/month/year</i>) 10.12.2004	Priority date (<i>day/month/year</i>) 25.12.2003
International Patent Classification (IPC) or national classification and IPC B01D53/86(2006.01), B01J35/02 (2006.01), B01J37/00(2006.01) B32B9/00(2006.01)		
Applicant TAIYO KOGYO CORPORATION		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising: a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of <u>29</u> sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input checked="" type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on:

- ☒ the international application in the language in which it was filed
- ☐ the translation of the international application into _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3(a) and 23.1(b))
- ☐ publication of the international application (Rule 12.4(a))
- ☐ international preliminary examination (Rule 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-22 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. 1-11, 13-16, 18-21 as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* _____ received by this Authority on _____
- nos.* _____ received by this Authority on _____
- ☒ the drawings:
- sheets fig. 1-10 as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☒ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☒ the claims, nos. 12, 17
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____
- ☐ any table(s) related to sequence listing (specify): _____

4. ☒ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☒ the description, pages 3, 3/1, 4, 4/1, 5, 5/1, 6, 6/1, 22
- ☒ the claims, nos. 1-5, 10, 11, 13-16, 18-23
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____
- ☐ any table(s) related to sequence listing (specify): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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International application No.

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	<u>1-11, 13-16, 18-21</u>	YES
	Claims	<u></u>	NO
Inventive step (IS)	Claims	<u></u>	YES
	Claims	<u>1-11, 13-16, 18-21</u>	NO
Industrial applicability (IA)	Claims	<u>1-11, 13-16, 18-21</u>	YES
	Claims	<u></u>	NO
2. Citations and explanations (Rule 70.7)			
<p>Document 1: JP 2002-282703 A (Toray Industries, Inc.), 02 October 2002, claims, paragraphs [0005] to [0025], examples, drawings</p> <p>The inventions set forth in claims 1 to 11, 13 to 16 and 18 to 21 do not involve an inventive step in the light of document 1 cited in the international search report.</p> <p>Document 1 indicates that a photocatalyst-containing compact is laminated onto a sheet-like fiber structure for use (paragraph [0021]), and further indicates that because it is common for said fiber structures to be fabricated by means thermal bonding, it is preferable for the photocatalyst-containing support layer to be configured from a thermoplastic synthetic resin (paragraphs [0019] and [0022]); therefore, it would have been easy for a person skilled in the art to conceive of thermally bonding the photocatalyst-containing support layers.</p> <p>In addition, it is normal for the bonding strength to be compromised if the content of the photocatalyst is too high, and it is also normal for the photocatalytic action to be compromised if the content of the</p>			

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Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

photocatalyst is too low; therefore, it would have been easy for a person skilled in the art to conceive of delimiting an optimal range for the content of the photocatalyst.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box I.4

The Amendment Forms Dated 24 October 2005

(1)

The amendments to claims 1 and 2, which stipulate that the "bonding surfaces are formed from the abovementioned apatite-coated photocatalyst particles and a thermally fusible material," go beyond the scope of the disclosure in the international application as originally filed.

(2)

The embodiments only set forth a feature wherein the bonded sections of the photocatalyst sheets that comprise a prescribed substrate, which is configured by combining a polyester fiber base material and a coating layer of a polyvinyl chloride resin (embodiments 1 to 5) or by combining a glass fiber fabric base material and a coating layer of a PTFE or FEP (embodiments 6 to 10), a prescribed coating layer, which is coated onto both surfaces of said substrate, and a photocatalyst-containing layer, which is coated onto only one surface of said coating layer, are delaminated at a rate of 50 mm/min. Therefore, the description as originally filed does not set forth a feature wherein photocatalyst sheets comprising a photocatalyst-containing layer that is provided directly to the substrate (claims 3, 15 and 18 to 21) or photocatalyst sheets comprising a substrate, a coating film layer provided to one surface or both surfaces of the substrate, and a photocatalyst-containing

Supplemental Box

layer coated upon the coating film layer that was provided on one surface of the substrate or upon the coating film layer that was provided on both surfaces of the substrate (claims 4, 15 and 18 to 21) are subjected to a delamination test. Likewise, the description as originally filed does not set forth a feature wherein photocatalyst sheets that comprise base materials or resins other than those set forth in the embodiments are subjected to a delamination test at a rate of 50 mm/min. Consequently, the amendments to claims 3, 4, 15 and 18 to 21 go beyond the scope of the disclosure in the international application as originally filed.

The Amendment Forms Dated 20 April 2006

The description as originally filed does not set forth a feature wherein photocatalyst sheets that comprise a substrate configured from synthetic fibers or inorganic fibers other than those set forth in the embodiments and/or a coating layer configured from another resin or rubber (claims 1, 3, 5 to 11, 13, 14 and 22) are thermally bonded and then delaminated at a delamination rate of 50 mm/min. Furthermore, the disclosures in claims 2, 4, 15, 16, 18 to 21 and 23 cannot be said to exclusively signify that the photocatalyst-containing layers are thermally bonded. In addition, the embodiments do not mention that the fluoro-resin is selected from among PTFE, FEP and PFA. Consequently, the amendments to claims 1 to 11, 13 to 16 and 18 to 23 go beyond the scope of the disclosure in the international application as originally filed.